

What is claimed is:

1. An optical semiconductor relay comprising:

a light emitting element converting an electrical signal into an optical signal;

a first photodiode array receiving the optical signal from the light emitting element, the first photodiode array converting the optical signal into an electrical signal;

a first diode having one electrode connected to one end of the first photodiode array;

a MOSFET having a gate terminal connected to other electrode of the first diode, and a source terminal connected to other end of the first photodiode array;

a second photodiode array receiving the optical signal from the light emitting element, the second photodiode array converting the optical signal into an electrical signal, and having both ends connected to the respective electrodes of the first diode; and

a control circuit connected between the gate and source terminals of the MOSFET.

2. The optical semiconductor relay according to claim 1,

wherein the control circuit comprises:

an impedance element connected between the gate and source terminals of the MOSFET;

a bipolar transistor having base and collector terminals connected to both terminals of the impedance element, respectively; and

a second diode connected between an emitter and base terminals of the bipolar transistor.

3. The optical semiconductor relay according to claim 1,

wherein a plurality of photodiodes of a same polarity are connected in series in each of the first and second photodiode arrays, and the photodiodes constituting the first photodiode array has connection areas larger than those of the photodiodes constituting the second photodiode

array.

4. The optical semiconductor relay according to claim 1,
wherein an anode electrode of the first diode is connected to an anode end of the first photodiode array.
5. The optical semiconductor relay according to claim 2,
wherein the impedance element is a resistor.
6. The optical semiconductor relay according to claim 2,
wherein an anode of the second diode is connected to the emitter terminal of the bipolar transistor and the source terminal of the MOSFET, and a cathode of the second diode is connected to a cathode end of the first photodiode array.
7. An optical semiconductor relay, comprising:
 - a light emitting element converting an electrical signal into an optical signal;
 - a first photodiode array receiving the optical signal from the light emitting element, the first photodiode array converting the optical signal into an electrical signal;
 - a first diode having one electrode connected to one end of the first photodiode array;
 - a MOSFET having a gate terminal connected to other electrode of the first diode, and a source terminal connected to other end of the first photodiode array;
 - a second photodiode array receiving the optical signal from the light emitting element, the second photodiode array converting the optical signal into an electrical signal, and having one end connected to one electrode of the first diode, and other end connected to other electrode of the first diode through an impedance element;
 - a normally-on transistor having source and drain terminals connected to the gate and source terminals of the MOSFET, respectively,

and a gate terminal connected to a connection point between the impedance and the second photodiode array; and

a bypass diode connected to the impedance element in parallel.

8. The optical semiconductor relay according to claim 7,
wherein the normally-on transistor is a junction FET transistor.

9. The optical semiconductor relay according to claim 7,
wherein the impedance element is a resistor.

10. The optical semiconductor relay according to claim 7,
wherein the bypass diode is a plurality of diode elements connected
in series.